

Ludington Deer Population Estimates Based on The Ludington High School 2018/2019

“A. P. Environmental Science Deer Camera Study in Ludington, MI.”

During at least two council meetings Mayor Barnett cited a Ludington high school science project labeled “A. P. Environmental Science Deer Camera Study in Ludington, MI.” The study was completed under the auspices of Mark Willis. After speaking with superintendent Kyle Corlett and Mark Willis about the report I made a FOIA request for a copy of the report which is now in my possession. My original intent was to send it to a professional wildlife population expert for evaluation but after reading the report determined that was not necessary because this study does not calculate or in any other way designate how many deer are residing inside the Ludington city limits because it is raw data that needs to be subjected to analysis to determine what it means. Unfortunately, Mayor Barnett mistakenly believed the raw data represented the number of deer in the city and it does not.

The study report is a little short on details, which I have requested from Mr. Willis but relatively safe assumptions can be made that should not impact the conclusions drawn from the study significantly. The students placed ten cameras in wooded areas throughout the city baited each with corn and collected photographs for about 200 days (From the start of the school year to late winter). During that time the cameras captured 375 photographs of deer. Given the length of time the cameras were in place and the number of cameras that equates to one deer photograph every five to six days or thirty-seven or thirty-eight photos for each camera over the entire study period.

So how many deer are residing in Ludington based on the results of this test? That is a very interesting question, but not an easy one to answer. There are many factors that can affect how many deer you will photograph, such as the deer population, the deer activity, the corn availability, the camera placement, and the weather. However, I can try to give you a rough estimate based on some assumptions and information from the web.

Test Criteria Assumptions for Deer Trail Cameras

First, let's assume that the deer population in the Ludington Michigan area is like the average deer density in the Northern Lower Peninsula, which is about 15 deer per square mile “1”. Let's also assume that each trail camera covers a circular area of 0.1 square mile, which is equivalent to a radius of about 0.18 mile or 950 feet. This means that each camera has a potential of capturing 1.5 deer per day if all deer in the area visit the camera.

Second, let's assume that the deer activity and the corn bait are correlated. According to some sources “2-3”, corn is a highly attractive bait for deer, especially in the late season when natural food sources are scarce. However, corn can also be harmful to deer if they consume too much of it after eating mostly woody roughage “2”. Therefore, we need to balance the amount of corn we use to bait the deer and consider the availability of other food sources in the area. For this estimate, let's assume that we use 50 pounds of corn per camera per week, which is about 7 pounds per day. This should be enough to lure the deer, but not enough to cause digestive problems.

Third, let's assume that the camera placement and the weather are optimal. We want to place the cameras in areas that have high deer traffic, such as trails, edges, funnels, or bedding areas "4". We also want to avoid placing the cameras in direct sunlight, or facing the wind, as this can affect the quality of the photos or the detection of the motion sensors "4". Additionally, we want to have favorable weather conditions, such as moderate temperatures, low wind, and no precipitation, as these can influence the deer movement and behavior "4". For this estimate, let's assume that we have ideal camera placement and weather for 80% of the 200 days, which is 160 days.

Based on these assumptions, we can calculate the expected number of deer photos per camera per day as follows:

On ideal days (80% of the time), we expect 1.5 deer per camera per day, multiplied by a 90% chance of the deer being attracted by the corn, and a 95% chance of the camera capturing a clear photo. This gives us $1.5 \times 0.9 \times 0.95 = 1.28$ deer photos per camera per day.

On non-ideal days (20% of the time), we expect 1.5 deer per camera per day, multiplied by a 50% chance of the deer being attracted by the corn, and a 80% chance of the camera capturing a clear photo. This gives us $1.5 \times 0.5 \times 0.8 = 0.6$ deer photos per camera per day.

Therefore, the average number of deer photos per camera per day is $1.28 \times 0.8 + 0.6 \times 0.2 = 1.08$.

Conclusions drawn from the analysis.

To get the total number of deer photos for 50 deer from 10 cameras in 200 days, we simply multiply the average number of deer photos per camera per day by 10 and by 200. This gives us $1.08 \times 10 \times 200 = 2160$ deer photos.

So, if there were about 50 deer in Ludington (15 deer per sq. mile x 3.4 Sq. miles) one would expect 2160 photographs and the actual count was 375. That is about 17% so there are about eight deer in the city at any given time

Of course, this is just an estimate, and the actual number of deer photos may vary depending on the actual conditions and variables. Also, keep in mind that some deer photos may be duplicates of the same deer, or may include other animals besides deer. Therefore, the number of deer photos does not necessarily reflect the number of individual deer in the area.

In short, the only thing this study proves is that there are fewer than the area average of fifteen deer per square mile in the city, which is exactly what one would expect. And far less than the over 300 claimed by Mayor Barnett.

1: Deer Management Unit Info - State of Michigan 2: The Deer Baiting Guide: All About Baiting Whitetails – Hunt Stand 3: How to Use Corn As Bait For Hunting Deer – Precision Outdoors 4: How to Hunt Big Bucks Over Bait | Outdoor Life